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## Practical Electronics: Circuit Construction

**SCQF:** level 5 (6 SCQF credit points)

**Unit code:** H25M 75

### Unit outline

The general aim of this Unit is to develop skills in assembling a range of electronic circuits, using permanent and non-permanent methods, to construct complete working devices. Learners will also develop skills in testing and fault-finding.

Learners who complete this Unit will be able to:

- 1 Plan the construction of electronic circuits
- 2 Construct working electronic circuits
- 3 Test electronic circuits

This Unit is available as a free-standing Unit. The Unit Specification should be read in conjunction with the Unit Support Notes, which provides advice and guidance on delivery, assessment approaches and development of skills for learning, skills for life and skills for work. Exemplification of the standards in this Unit is given in the Unit Assessment Support

## **Recommended entry**

Entry to this Unit is at the discretion of the centre. However, learners would normally be expected to have attained the skills, knowledge and understanding required by one or more of the following or equivalent qualifications and/or experience:

Practical Electronics: Circuit Construction (National 4)

Numeracy (National 4)

## **Equality and inclusion**

This Unit Specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence. For further information, please refer to the Unit Support Notes.

# Standards

## Outcomes and assessment standards

### Outcome 1

The learner will:

#### 1 Plan the construction of electronic circuits by:

- 1.1 Listing, sourcing and costing the required components
- 1.2 Choosing a construction method
- 1.3 Creating a layout diagram

### Outcome 2

The learner will:

#### 2 Construct working electronic circuits by:

- 2.1 Inserting components on to prototype board
- 2.2 Soldering components on to strip board and pre-printed PCB
- 2.3 Connecting relays and other electromechanical devices
- 2.4 Applying a range of wiring techniques
- 2.5 Applying safe working practices

### Outcome 3

The learner will:

#### 3 Test electronic circuits by:

- 3.1 Creating and following a testing checklist
- 3.2 Using multimeters, logic probes, oscilloscopes and continuity testers
- 3.3 Measuring resistance, current, voltage (peak and rms) and frequency

## Evidence Requirements for the Unit

Assessors should use their professional judgement, subject knowledge and experience, and understanding of their learners, to determine the most appropriate ways to generate evidence and the conditions and contexts in which they are used. For this Unit, learners will be required to demonstrate the ability to plan, construct and test electronic circuits, while applying safe working practices. Evidence may be observational, obtained while the learner is carrying out appropriate practical tasks. Exemplification of assessment is provided in the Unit Assessment Support. Advice and guidance on possible approaches to assessment is provided in the Unit Support Notes.

## **Development of skills for learning, skills for life and skills for work**

It is expected that learners will develop broad, generic skills through this Unit. The skills that learners will be expected to improve on and develop through the Unit are based on SQA's Skills Framework: Skills for Learning, Skills for Life and Skills for Work and drawn from the main skills areas listed below. These must be built into the Unit where there are appropriate opportunities.

### **2 Numeracy**

2.3 Information handling

### **5 Thinking skills**

5.2 Understanding

5.3 Applying

Amplification of these is given in SQA's Skills Framework: Skills for Learning, Skills for Life and Skills for Work. The level of these skills should be at the same SCQF level of the Unit and be consistent with the SCQF level descriptor. Further information on building in skills for learning, skills for life and skills for work is given in the Unit Support Notes.

# Administrative information

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**Published:** December (version 1.0)

**Superclass:** XL

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## History of changes to National Unit Specification

Version	Description of change	Authorised by	Date

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Note: readers are advised to check SQA's website: [www.sqa.org.uk](http://www.sqa.org.uk) to ensure they are using the most up-to-date version of the Unit Specification.

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